

Appln No. 09/734,237

Amdt date August 6, 2003

Reply to Office action of February 6, 2003

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

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A2  
1. (Currently Amended) A synthetic nucleic acid sequence comprising a non-naturally occurring polymer of nucleic acids that ~~[has no more than 95% homology to a naturally occurring nucleic acid sequence which encodes a first protein having an amino acid sequence, wherein the synthetic nucleic acid sequence encodes a second protein having an amino acid sequence, the second protein's amino acid sequence being]~~ is at least 90% homologous to [the] a [amino acid] sequence [of the first protein, and further wherein the synthetic nucleic acid's sequence has a predicted free energy of folding per base that is at least 4% greater than the predicted free energy of folding per base of the naturally occurring nucleic acid sequence] selected from the group consisting of SEQ. ID NO. 77, SEQ. ID NO. 78 and SEQ. ID. NO. 79.

2. (Currently Amended) The synthetic nucleic acid sequence of claim 1 wherein the synthetic sequence ~~[has no more than 90% homology to the naturally occurring sequence and the second protein]~~ is at least 95% homologous to ~~[the first protein, and further wherein the free energy of folding per base of the synthetic sequence is at least 10% greater than the free energy of folding per base of the naturally occurring sequence]~~ a sequence selected from the group consisting of SEQ. ID NO. 77, SEQ. ID NO. 78 and SEQ. ID. NO. 79.

3. (Currently Amended) The synthetic nucleic acid sequence of claim 1 wherein the synthetic sequence ~~[has no more than 85% homology to the naturally occurring sequence and the second protein]~~ is at least 97% homologous to ~~[the first protein, and further wherein the free energy of folding per base of the synthetic sequence is at least 15% greater than the free energy of folding per base of the~~

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~~naturally occurring sequence]~~ a sequence selected from the group consisting of SEQ. ID NO. 77, SEQ. ID NO. 78 and SEQ. ID NO. 79.

4. (Currently Amended) The synthetic nucleic acid sequence of claim 1 wherein the synthetic sequence ~~[has no more than 80% homology to the naturally occurring sequence and the second protein]~~ is at least 99% homologous ~~[to the first protein, and further wherein the free energy of folding per base of the synthetic sequence is at least 20% greater than the free energy of folding per base of the naturally occurring sequence]~~ a sequence selected from the group consisting of SEQ. ID NO. 77, SEQ. ID NO. 78 and SEQ. ID NO. 79.

A2  
007.  
5 to 22. (Cancelled)

23. (Currently Amended) The synthetic nucleic acid sequence of claim 1 wherein the ~~[amino acid]~~ sequence ~~[of the second protein]~~ comprises ~~[one of SEQ. ID NO. 32, SEQ. ID NO. 35, SEQ. ID NO. 37, SEQ. ID NO. 39, SEQ. ID NO. 42, SEQ. ID NO. 44, SEQ. ID NO. 46, SEQ. ID NO. 48, SEQ. ID NO. 50, and SEQ. ID NO. 52, SEQ. ID NO. 56, SEQ. ID NO. 60, SEQ. ID NO. 64, SEQ. ID NO. 68, SEQ. ID NO. 75, SEQ. ID NO. 79, SEQ. ID NO. 54, SEQ. ID NO. 58, SEQ. ID NO. 62, SEQ. ID NO. 66, SEQ. ID NO. 70, SEQ. ID NO. 73, and]~~ SEQ. ID NO. 77.

24. (Currently Amended) The synthetic nucleic acid sequence of claim 1 wherein the ~~[amino acid]~~ sequence ~~[of the second protein]~~ comprises ~~[one of SEQ. ID NO. 37, SEQ. ID NO. 44, SEQ. ID NO. 48, SEQ. ID NO. 52, SEQ. ID NO. 56, SEQ. ID NO. 60, SEQ. ID NO. 64, SEQ. ID NO. 68, SEQ. ID NO. 75, and]~~ SEQ. ID NO. 79.

25. (Cancelled)

26. (Currently Amended) [A] The synthetic [oligonucleotide having a] nucleic acid sequence of claim 1, wherein the sequence comprises [selected from the group comprising SEQ. ID NO. 33, SEQ. ID NO. 36, SEQ. ID NO. 40, SEQ. ID NO. 43, SEQ.

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A2  
cost.  
~~ID NO. 51, SEQ. ID NO. 55, SEQ. ID NO. 59, SEQ. ID NO. 63, SEQ. ID NO. 67, SEQ.~~  
~~ID NO. 71, SEQ. ID NO. 74,] SEQ. ID NO. 78 and [their] its complementary sequences.~~

27. to 72. (Cancelled)

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